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Weekly Bulletin

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EDITOR

THE COUNTY LABORATORY.*

By V. G. PRESSON, M.D., Health Officer, Orange County.

In looking over the history of public health, we find that the laboratory gave the impetus for this great work. Yet, paradoxical as it may sound, the laboratory has been one of the most neglected fields in health work, from a county and municipal standpoint. All of us are not Pasteurs, Kochs, nor Nagouchis. These men gave their time, energy, and devotion to laboratory work, not for public health as we understand it today, but for the health of the public. We use the results of these men's experiments every day with but little thought to the trials and tribulations attending their discoveries.

Without knowing why, except from a desire for personal and environmental comfort, public health was practiced by the Greeks, Phoenicians, Romans, and ancient Egyptians. But the true desire to make health the portion of every man was born with bacteriology. The medical men soon grasped the fact that, when the exact cause of disease was known, the therapeutics and elimination would follow. With this in mind, they set about to give the public the benefits of these discoveries. The field of public health was now opened. The scientific application of public health was not made for several years, and even yet is in its formative stage.

Medicine has long sought an empirical formula for the diagnosis of disease. This result will probably never be at-

tained. Most lecturers on diagnosis state that the facts obtained by history, physical examination, laboratory, and x-ray should be correlated and the diagnosis be made therefrom. This is the correct attitude. But the laboratory probably presents more indisputable facts than the other methods. True, many of our negative findings mean but little, but our positives are concrete information. In public health, the laboratory plays another part besides the diagnosis of a condition. It leads us to the source of contamination, which will cause subsequent disease. It tells us whether or not our water is pure, it points an accusing finger at unsanitary dairies, it picks out adulterated foods, it assists the officers of justice by analyzing toxic beverages, and it determines poisonous gases. Most of the above results are obtained by a combination of bacteriology and chemistry. Chemistry was early added to the laboratory technician's list of tools.

Parasitology is another useful adjunct. The study and application of this science also has a twofold purpose. First, it is a method of diagnosis. The laboratory worker can tell the physician or public health official whether or not his patient is suffering from hookworm, malaria, or other animal forms of organism. Then the laboratory can determine the presence of malaria or yellow fever carrying mosquitos. It can ascertain the presence or absence of plague-bearing fleas on

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rodents. It can materially assist by finding the best way to eliminate these parasites.

In considering the laboratory in connection with public health, we must mention serology. With knowledge gained from bacteriology and chemistry, came the understanding of serums. This field also has more than one side. It is a diagnostic agent and at times it is a therapeutic agent. In addition to these, it gives us a weapon to help achieve our ideal, preventive medicine. It opens the portals of immunization to us.

With this combination of bacteriology, chemistry, parasitology and serology, the knowledge of scientific men and women, can we, as individual health officers, make use of it? Heretofore, this theme has been on the laboratory in all its concepts as an aid to public health. But we must present it in a usable form to a county or municipal health unit. Unfortunately, many discouraging features enter into the formation of a laboratory. Circumstances alter cases. Many men feel that they do not need a laboratory of their own, with the state laboratory close at hand. Many physicians maintain small laboratories in conjunction with their office. Possibly, many health officers feel that they can allow the local hospital to do their work for them, thereby saving money for their budget. Quite frequently, such a thing as politics enters into the formation of a laboratory, for the political powers-that-be must be consulted in regard to the funds necessary to carry forward the work. Be those as they may, every public health organization, no matter how small, should have a laboratory in connection if at all possible. Too much dependence should not be put in the state, for they have plenty of work to do in research and taking care of areas which are without the services of a full-time health unit. The physicians will soon, when confidence has been gained, discard their small laboratories except for minor things. Most physicians do not employ a graduate bacteriologist, but have a nurse partly trained to do laboratory work. If you supply them with laboratory reports made by an accredited bacteriologist, they will be glad to cooperate with you. Then you have first-hand information to assist you in your work. The practice of allowing the local hospital to do your laboratory work is more expensive in the long run. It is sometimes hard to convince county or municipal officials that a laboratory is essential, but once it is established they usually think more of that particular branch of the department than the others. The laboratory results are sometimes spectac-

lar and catch the fancy of the people as a whole, who in turn sway the opinions of the officials. Ofttimes, it takes an epidemic to show the value of a laboratory to the public.

Some municipalities and counties contract their laboratory work. This is better, much better, than not having any laboratory at all close at hand, but we can not help but feel that this is possibly more expensive, and it removes the direct control from the health officer, which might cause friction, lost motion and lack of efficiency.

It is not always possible, nor even desirable, for a health unit to establish a laboratory with three or four workers. Some health departments get along very well with a graduate bacteriologist who does the laboratory work and also the secretarial work. Many persons can be found who are qualified in both. Some find it convenient to use only one graduate bacteriologist, who is free from other work, in their laboratory. Conditions differ in every locality. The best laboratory is the one that functions best in the area in which it is located. The laboratory must meet local conditions.

We should like to present our ideas of an ideal public health laboratory. This laboratory should be directly under the supervision of the health officer. The health officer should be qualified to interpret the findings and to make suggestions for the betterment of the service. At the head of this laboratory should be a graduate bacteriologist. Reagents media, mechanisms, etc. should be supplied in sufficient quantity and quality to enable the work to be carried forward. The bacteriologist should be furnished sufficient help so that the work would be done efficiently and quickly. The bacteriologist should be able to do the following work: Typhoid isolation, diphtheria cultures and isolation, gonococcus isolation, tuberculosis examination, streptococcus and staphylococcus examination, spinal fluid technic, Wassermanns, rabies, widal, chemical analyses, water, food and milk contamination work, animal experimentation in serology and such clinical work as urinalyses, blood chemistry, blood counts, etc. This clinical work helps get the physicians in general practice to use your laboratory. It calls for but little additional knowledge and establishes quite a contact. The bacteriologist should also be well-versed in parasitology. A complete record should always be kept.

The physicians in practice and the public should know just what work your laboratory is capable of doing. They should be informed by circular letter of any changes, especially those for the

better. Convenient stations should be established where the physician can get empty containers and place his specimens for the laboratory. These can be collected by sanitary inspectors or nurses at frequent intervals or at least once a day. All persons able to pay should be charged the commercial rates for their laboratory work unless it is strictly epidemiological.

Not all of us can have an ideal laboratory, but each should strive to have the best he can under the circumstances.

The cost of equipping and maintaining quite frequently is a factor in the establishing of a laboratory. Perhaps, we might be allowed to quote a few facts and figures, and exhibit some graphs, obtained from the laboratory of the Orange County Health Department. We might remark, parenthetically, that we have done considerable clinical work, due to the fact that the laboratory is located in the Orange County Hospital and does their work for them in return for the use of this space.

The Orange County laboratory was established September 1, 1923. At that time, one graduate bacteriologist did all the work. During the typhoid epidemic in Santa Ana, which started in January, 1924, it was found necessary to add an assistant and an untrained helper. Later, the assistant was released and the untrained helper was put on part-time. The work had increased to such an extent by June 1, 1925, that the assistant was reemployed and the helper was put on full-time.

The initial figure for the laboratory equipment was \$2,048.61. The bacteriologist was paid a salary of \$150 per month. The assistant was paid \$125 a month and the helper \$75 a month for full-time and \$55 a month for part-time. The total expenses for the laboratory for the two-year period, September 1, 1923, to August 31, 1925, including initial expense, salaries and contingencies was \$9,232.63. The work increased all along from the time of the establishment. The total number of laboratory tests made were 30,992. Figuring the lowest commercial rate for charging, the laboratory would have taken in \$34,986.14 had they charged for this work. Deducting the expense, the people of Orange County were saved \$25,753.51 for a two-year period. This represents an annual saving of \$12,877 and the work was done at home and the information was available immediately and without friction.

Open Window Best Method of Ventilation.

Dr. C. E. A. Winslow, recently elected President of the American Public Health Association, and chairman of the New York State Commission on Ventilation, makes the following statements regarding the requirements for successful window ventilation:

"In order that the system of window ventilation may be satisfactory, there must be ample heat supply through radiators placed below the windows. The heat supply in these radiators must be carefully controlled either by hand or by thermostat. Window boards or deflectors should be used to impart an upward direction to the incoming air. Panes of glass, one foot high, set in the window sash, or a deflector made of parallel curved vanes may be used. There must be openings in the inside wall of the classroom, having at least eight square feet in diameter in all, leading into air ducts through which the heated air of the room can find its way out. This is the 'gravity exhaust duct' which must be provided for successful window ventilation. There is no need of a suction fan in this duct, as it works against the success of the system. The ducts should have aspirating cowls on the roof and should be provided with dampers to control down-drafts. Without these gravity exhaust ducts, window ventilation is successful only in mild weather when inside doors and transoms are opened.

"The room must not be overcrowded, for overpopulation mitigates against the success of window ventilation. In the average sized classroom there should be no more than 39 second grade children or 30 sixth grade children. There should be a thermometer in the room so that overheating can be avoided. A temperature around 67 degrees F. is most agreeable. Window shades should be so attached as to avoid flapping."



The success of any community-wide crusade for disease prevention and health conservation rests finally with the desire for health on the part of the individuals who constitute the community—and upon their willingness to avail themselves of the assistance which modern medical science has placed within their reach.

Even to persuade all of a neighborhood's sick to consult a physician or to attend a clinic is often difficult. To persuade those who are well and those who, though sick, believe they are well to incorporate into their habits of life but one physical examination annually, is perhaps more difficult.

MORBIDITY.***Diphtheria.**

108 cases of diphtheria have been reported, as follows: Los Angeles 38, Oakland 10, San Francisco 8, Los Angeles County 8, Napa County 5, Orange County 5, Woodland 1, Stanislaus County 1, Huntington Park 1, Paso Robles 1, San Bernardino 1, Hawthorne 1, Monterey County 1, La Verne 1, Yolo County 1, Healdsburg 3, Fresno 4, Long Beach 3, Fullerton 2, Richmond 1, Humboldt County 1, Concord 1, Stockton 1, Monrovia 1, San Diego 2, Ventura County 2, Santa Clara County 2, Sonoma County 1, Colusa County 1.

Measles.

12 cases of measles have been reported, as follows: Sausalito 1, Los Angeles 2, San Francisco 3, Alameda 1, Berkeley 1, Los Angeles County 1, Pasadena 1, San Gabriel 1, Santa Barbara 1.

Scarlet Fever.

70 cases of scarlet fever have been reported, as follows: San Francisco 10, Los Angeles 7, Los Angeles County 5, Oakland 1, Turlock 1, Kern County 2, San Bernardino County 1, Lakeport 2, San Diego 4, Stanislaus County 4, Ontario 1, Compton 1, Lompoc 1, Pasadena 1, Redondo 1, Stockton 4, Monterey County 4, San Joaquin County 1, Santa Monica 1, San Bernardino 1, San Anselmo 1, Tulare County 1, San Jose 1, Long Beach 3, Bakersfield 1, Gridley 2, Butte County 2, Santa Ana 2, Orange County 3, Lake County 1.

Smallpox.

30 cases of smallpox have been reported, as

follows: Richmond 8, Sacramento 6, Los Angeles 5, Oakland 5, Los Angeles 1, Davis 2, Pasadena 1, Orange County 1, Lake County 1.

Typhoid Fever.

12 cases of typhoid fever have been reported, as follows: Lake County 1, San Francisco 1, Long Beach 1, Los Angeles 3, Culver City 1, Tulare County 1, Pasadena 1, Oakland 2, California 1.

Whooping Cough.

48 cases of whooping cough have been reported, as follows: San Fernando 9, San Francisco 6, Berkeley 6, Long Beach 5, San Diego 3, San Bernardino County 4, Los Angeles 4, Los Angeles County 2, Pasadena 2, Oakland 1, Monterey County 1, Alameda 1, Santa Barbara 4.

Anthrax.

Fresno County reported one case of anthrax.

Poliomyelitis.

4 cases of poliomyelitis have been reported, as follows: Glendale 1, Los Angeles County 1, Marysville 1, Shasta County 1.

Epidemic Encephalitis.

Two cases of epidemic encephalitis have been reported, as follows: San Mateo 1, San Francisco 1.

*From reports received on November 2 and 3 for week ending October 31.

COMMUNICABLE DISEASE REPORTS.

Disease	1925				1924			
	Week ending			Reports for week ending Oct. 31 received by Nov. 3	Week ending			Reports for week ending Nov. 1 received by Nov. 4
	Oct. 10	Oct. 17	Oct. 24		Oct. 11	Oct. 18	Oct. 25	
Anthrax.....	0	0	1	1	0	0	0	0
Chickenpox.....	94	78	145	122	74	118	132	170
Diphtheria.....	92	118	105	108	184	182	207	146
Dysentery (Bacillary).....	9	1	0	0	3	1	1	0
Epidemic Encephalitis.....	1	1	3	2	3	1	2	3
Epidemic Meningitis.....	1	1	3	0	1	3	2	4
Gonorrhoea.....	99	76	66	135	73	87	77	255
Influenza.....	14	10	17	14	6	38	17	14
Leprosy.....	2	1	0	0	0	1	1	0
Malaria.....	1	4	1	2	1	2	0	1
Measles.....	16	13	15	12	23	13	34	19
Mumps.....	101	118	144	118	56	52	73	49
Pneumonia (lobar).....	54	30	38	33	32	31	31	54
Poliomyelitis.....	18	16	12	4	10	12	9	17
Scarlet Fever.....	83	96	98	70	105	107	115	92
Smallpox.....	19	25	37	30	57	87	70	69
Syphilis.....	127	118	121	137	69	155	103	151
Tuberculosis.....	289	167	167	156	153	65	162	201
Typhoid Fever.....	7	19	15	12	28	20	22	18
Whooping Cough.....	100	73	52	48	57	38	79	82
Totals.....	1127	965	1040	1004	935	1013	1137	1345